ON THE PRINCIPLES OF GREEK ARCHITECTURE.*

Mr. Wilkins has remarked, "that the Greeks adhered to established rules for determining the proportions of the several divisions of the naos, cannot be doubted. The great similarity which is discernable in the plans of most of the temples with which we are acquainted, warrants the conclusion that they studiously followed some one great model, and deviated from it as little as circumstances would allow them. In order to ascertain the accuracy of this conclusion, we must have recourse to some of the earliest temples of which there is any authentic account, and consider what resemblance can be traced in the plans of such as were erected at periods not very distant, in countries remote from each other."

Our author, then, compares the plan and proportions of the temple at Jerusalem with the temple at Pæstum; those who may wish to ascertain how far he has succeeded, must refer to his "Antiquities of Magna Græcia." If we were to admit that Mr. Wilkins had shewn that the temple at Pæstum was exactly the same as the temple at Jerusalem, and that the latter was a model from which emanated the temples of Greece, we should even then be very little benefited, not more so than if it were to be proved that the form of one of our cathedrals had been selected from one on the continent. We differ from Mr. Wilkins in endeavouring to find a model from which the temples were copied:—our inquiry is—*What were the principles which guided the formation of the Grecian temples?* This is the very error of the followers of Mr. Wilkins's school, which has retarded the progress of architecture as an art of design for years; their aim being to imitate by copying, and continually discoursing of effects, instead of developing causes. Therefore, *however* correctly Messrs. Stuart and Revett, or Mr. Wilkins, may have delineated the existing remains of Grecian buildings, important as the acquisition may be—unless we can obtain the key by which we can detect the original source of their creation, we must never expect to understand Grecian architecture, but continue *to copy only the models*, to be satisfied with their acknowledged beauty, and remain ignorant of the cause of that beauty. The deficiency of a correct knowledge of proportion is one of the reasons why architecture in modern times has seldom been successfully treated. Each part of a Greek temple was so regulated as to bear a just proportion to the whole: in this alone how deficient are our edifices!

> "Though we excel in every separate part,
> Yet fall of just proportion in our art,
> In one grand whole unknowing to unite
> Those different parts."—*Horace.*

We have copied a portico, placed it against a house, a church, or a theatre; and however perfectly we have imitated it, and beautiful as it may be *per se*, it never has been adjusted to bear any proportion to the building to which it has been affixed.

Before, therefore, an architect can design an edifice in any style of architecture, he must become acquainted with that style which he proposes to adopt; and if he wishes to raise himself above the plagiarist, and add new features to existing styles, it is absolutely necessary he should first possess a knowledge of the principles which guided our ancestors; unless this be done, however cleverly he may imitate, it will be impossible for him to strike out new ideas with any certainty of success.

That the principles by which Grecian architecture has been moulded into beautiful forms have never been discovered is perfectly apparent, if we quote only a few remarks offered on this subject.

Mr. Gwilt observes, it may be objected to, that fitness alone will not account for the pleasure which arises in the contemplation of what are called the orders of architecture; and Alison seems very much "to doubt whether there be not some other cause of beauty."

"If admiration of Grecian architecture," says Mr. Wilkins, "result from intellectual association, it will be found to exist only among men of knowledge; and its just proportion will be determined by those whose taste is the most cultivated, and whose science is the most extensive; but if there be some intrinsic charm, some peculiar grace, which is necessarily acknowledged and felt by all mankind, we then must look for some more general principle, which will accommodate itself to this more general feeling." "We can scarcely deny, then, that the pleasure which is derived from surveying the ancient models of Grecian architecture is heightened by ideas connected with learning, with science, and with art; accompanied, as they still must be, by all the nameless charms which imagination combines with the history of the Greeks, and which it throws over all their productions. It is probable, nevertheless, that their buildings possess certain qualities which affect us independently of all these associations, and which, even without them, fail not to produce sentiments of admiration, and feelings of delight."

The same cause which operated so powerfully during the middle ages, and to which we and our continental neighbours are alike indebted for our beautiful cathedrals, viz., religion,—influenced in like manner the contemplation and erection of the Grecian temples; in the ancient, as well as in the modern world,—in savage, as well as in civilized nations,—we find that religious edifices are the largest in extent, the most elaborate in execution, and likewise the most costly of all the works of men.

If, therefore, we desire to seek the causes which operated so powerfully and so successfully in rearing edifices, acknowledged by all to be beautiful, our merely possessing accurate representations of those buildings is not sufficient for us to determine the reason of their being beautiful; to gain this desideratum, we must carefully inquire into, and examine the celebrated matured scientific systems of the earliest philosophers of Greece, and see if they will assist us by shedding any light upon so important and interesting a subject. To accomplish this, we will at once transport ourselves to Greece and the age of Thales and Pythagoras, who founded the earliest schools of geometry; the latter of whom, according to Proclus, was the first who gave geometry the form of a science.

Thales was born at Miletus, a Greek colony in Asia Minor, in the first year of the thirty-fifth Olympiad. After receiving the usual learning of his own country, he travelled into Egypt, where he became eminent in astronomy, geometry, philosophy, &c. From him astronomy made a very considerable advance, and he is generally reputed to be the father of the Greek philosophy, being the first that made any researches into natural knowledge. He founded the Ionian school 600 years B.C.

From Thales we pass on to Pythagoras, a philosopher no less distinguished than the former for the variety and extent of his discoveries. The information which he derived from his countrymen not satisfying his inquiring mind, he travelled into various countries. He first visited Egypt, from which country he went to Asia, where he is said to have made himself acquainted with the science of the Chaldæans and the Magi. Although these traditions may have some historical foundation, it is considered that his philosophical system was not derived from any foreign source, or even materially influenced by any thing that he saw and learned in the countries which he visited; his whole philosophy bears the impress of genuine Greek growth, and there is scarcely any thing in it which may not be traced to some native source.

Pythagoras finally settled at Crotona, in Southern Italy, and established a philosophical institution about B.C. 500, which in many respects bore great analogy to the Doric institutions which he had seen in Crete and Sparta. He instituted among his disciples a secret worship, or mysteries, which are sometimes called Pythagorean orgies; and the science of numbers, geometry, and music, were closely connected with the sacred rites.

The main purpose of philosophy, according to the system of Pythagoras, is to free the mind from incumbrances, and to raise it to the contemplation of immutable truth, and the knowledge of divine and spiritual objects. Mathematical science was with him the first step to wisdom, because it inures the mind to contemplation, and takes a middle course between corporeal and incorporeal beings. The whole science he divided into two parts, numbers and magnitude; and each of these he subdivided into two others; the former into arithmetic and music, and the latter into magnitude at rest, and magnitude in motion; the one comprehending geometry, and the other astronomy. Arithmetic he regarded as the noblest science, and an acquaintance with numbers as the highest good. He considered numbers as the principles of every thing, and divided them into scientific and intelligible. Scientific number is the production of the powers involved in unity, and its return to the same. Number is not infinite, but it is the source of that infinite divisibility into equal parts which is the property of all bodies.

Not any exposition having been handed down to us by Pythagoras of his scientific labours, it is undoubtedly no easy matter to separate, in the later traditions, what belongs to the old system, and what to the new. In modern times, great light has been thrown upon the subject by the careful examination and analysis of the fragments of Philolaus by Boeckh. Philollaus of Tarentum, a disciple of Pythagoras himself, was in all probability the first Pythagorean who wrote an exposition of the system of his master; and his fragments must therefore be considered as the most genuine source of information. The results at which Boeckh arrived are, on the whole, the same as those which Ritter subsequently reached, though by a different mode of inquiry.

* From "The Natural System of Architecture," by W. P. Griffith, Esq., F.S.A.

IRON AND THE IRON TRADE.

Since the last quarterly meeting of iron-masters, the trade has acquired much firmness, and may be regarded as in a more fixed and healthy state than for many months past. There is no disposition to form prices above their natural level, and the late rates agreed upon will we have no doubt be fully maintained. The tendency in the market is rather to advance than to recede. At a meeting of the masters at Glasgow, on the 30th ultimo, prices were reduced from 8*l*s. to 6*5*s. net, four months, or 2½ per cent. for prompt delivery. In rails, some large transactions have taken place during the past fortnight, at prices varying from 9*l*. to 9*l*. 10*s*. per ton.

It is well known, that iron made from coal in France is of an inferior quality, and unfit for railway and other engineering works. This fact, in connection with the fears of the French government, of the entire disforesting of the kingdom if charcoal iron-works are carried on to any extent, has suggested the idea of forming an establishment at Boulogne-sur-mer for the make of iron and the manufacture of fire-brick and pottery, from ores, coal, and clay, to be imported from Wales. Mr. R. Hopkins, with whom the idea originated, and who possesses several mines of the necessary materials, proposes to raise a capital of 100,000*l*., to carry into execution his project.

The following is a statement of the imports and exports relating to iron, for the past year, 1844. Our imports of foreign iron-ware—chromate of iron, 2,365 tons; pigs, 52 tons; bars unwrought, 24,483 tons; bloom iron, 524 tons; old broken and cast-iron, 97 tons; unwrought steel, 2,717 tons; wrought steel and iron, entered by weight, 153 tons—ditto, entered by value, 11,905*l*. Of foreign iron in bars, 21,598 tons were retained for home consumption, and 5,876 tons exported, of which 3,371 tons went to India, and 1,013 to our North American colonies.—Of British iron we exported that year 99,960 tons of pig-iron; 230,935 tons bar-iron; 18,920 tons bolt and rod-iron; 18,969 tons cast-iron; 1,963 tons iron wire; 2,490 tons of anchors, grapnels, &c.; 15,654 tons in hoops, &c.; 7,226 tons nails, &c.; and of all other sorts (except ordnance) 48,170 tons; of old iron, for re-manufacture, 9,271 tons; and of unwrought steel, 5,121 tons.

New Churches and Schools in the Diocese of Durham.—The dean and chapter of Durham have recently voted the following donations for buildings connected with religion and education:—300*l*. towards a new church in the parish of Berwick-upon-Tweed; 25*l*. towards a school at Castlesiden, near Lanchester; 20*l*. towards a school at Ellerker; 10*l*. towards a school at Coundon; 20*l*. towards a school, and 200*l*. towards a new church, at Ferryhill.

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